NAME: DATE:

Mastery Assessment of Unit 2 (Practice version 116)

Question 1

Let f represent a function. If $f[48] = 2$, then there exists a knowable solution to the equation below.

$$y = 28 \cdot f[18x - 24] - 42$$

Find the solution.

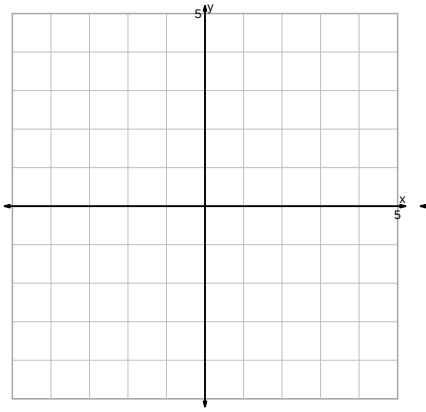
$x =$

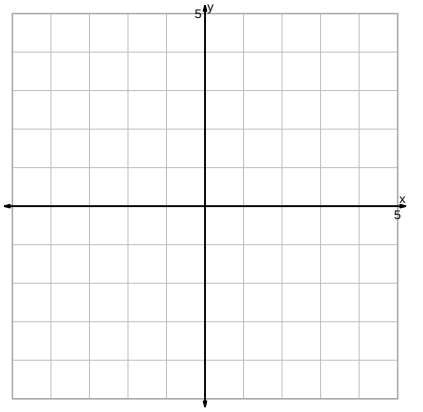
$y =$

Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

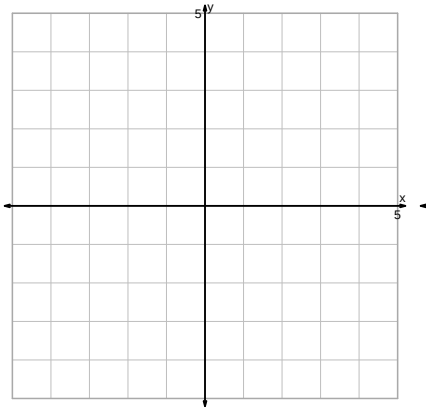
$y = \sqrt[3]{\frac{x}{2}}$

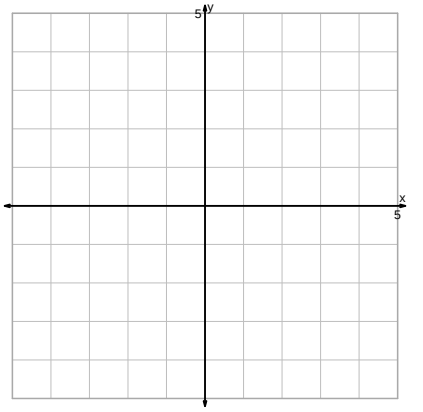




$y = -\log_2(x)$

$y = \sqrt{-x}$

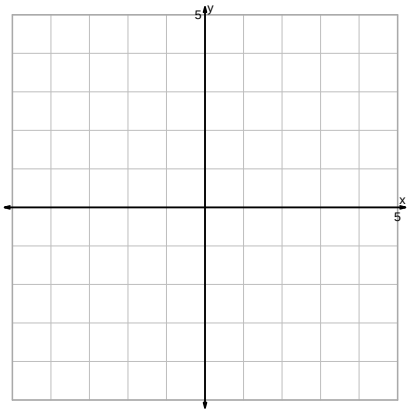


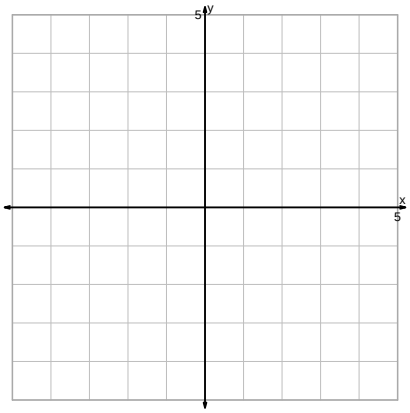


$y = \sqrt{x+2}$

Question 2 continued...

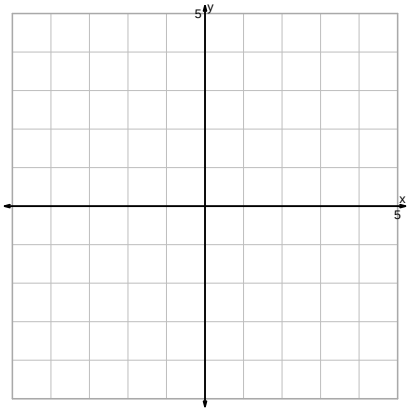
$y = \sqrt[3]{2x}$

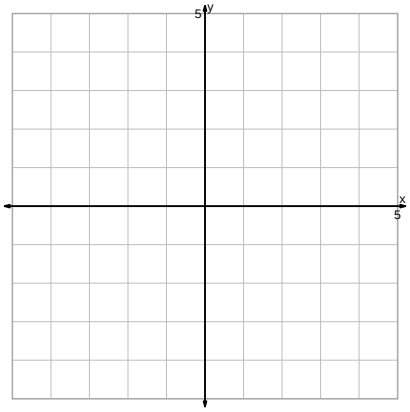




$y = 2 \cdot x^3$

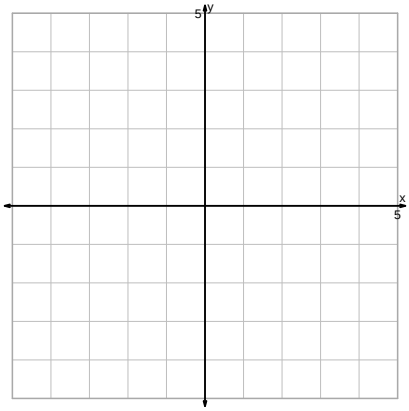
$y = x^3 + 2$

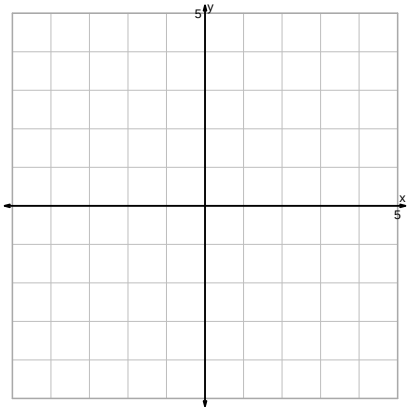




$y = \log_2\left(x\right) - 2$

$y = \frac{2^x}{2}$

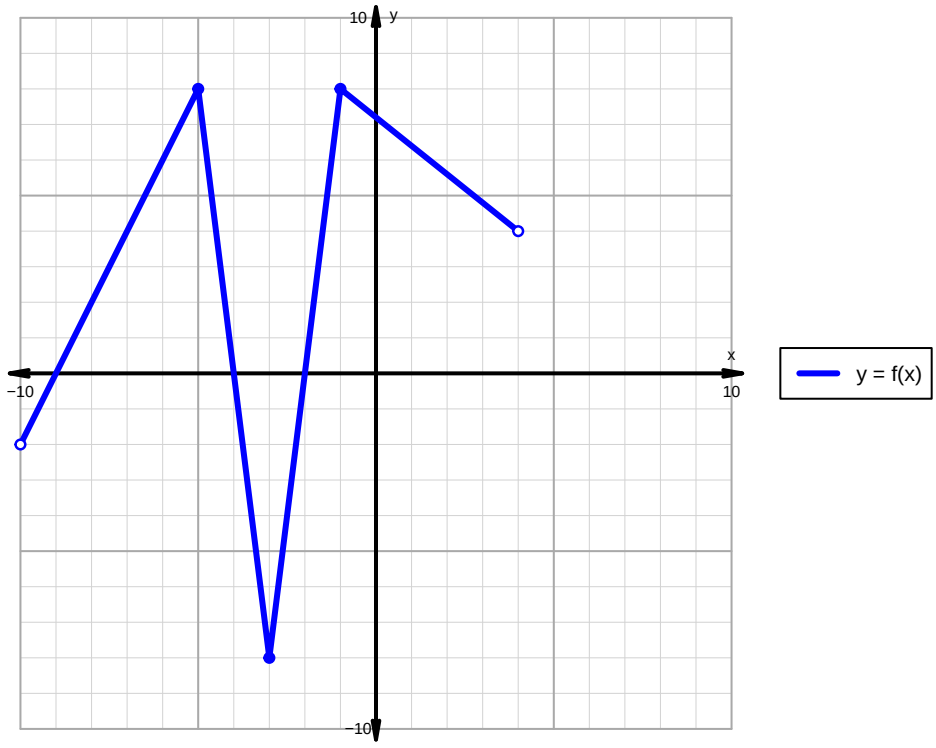




$y = \left(x - 2\right)^2$

Question 3

A function is graphed below.



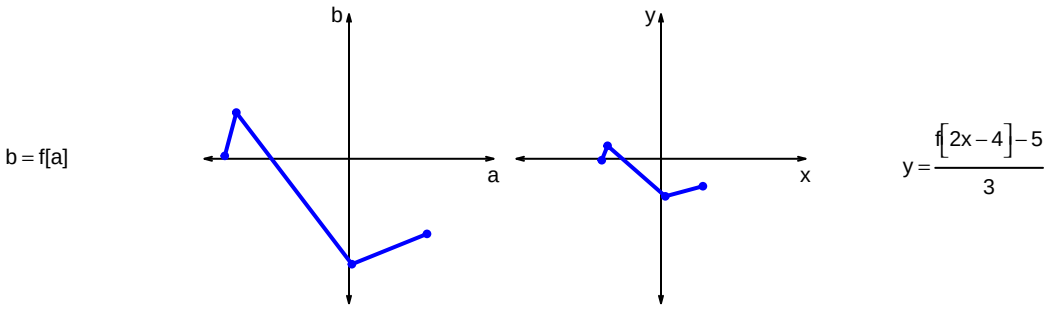
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = \frac{f[2x-4]-5}{3}$ are represented below in a table and on graphs.

a	b	x	y
-86	2	-41	-1
-78	32	-37	9
2	-73	3	-26
54	-52	29	-19



a. Write formulas for calculating x from a and calculating y from b. (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = \frac{f[2x-4]-5}{3}$?

Question 5

A parent square-root function is transformed in the following ways:

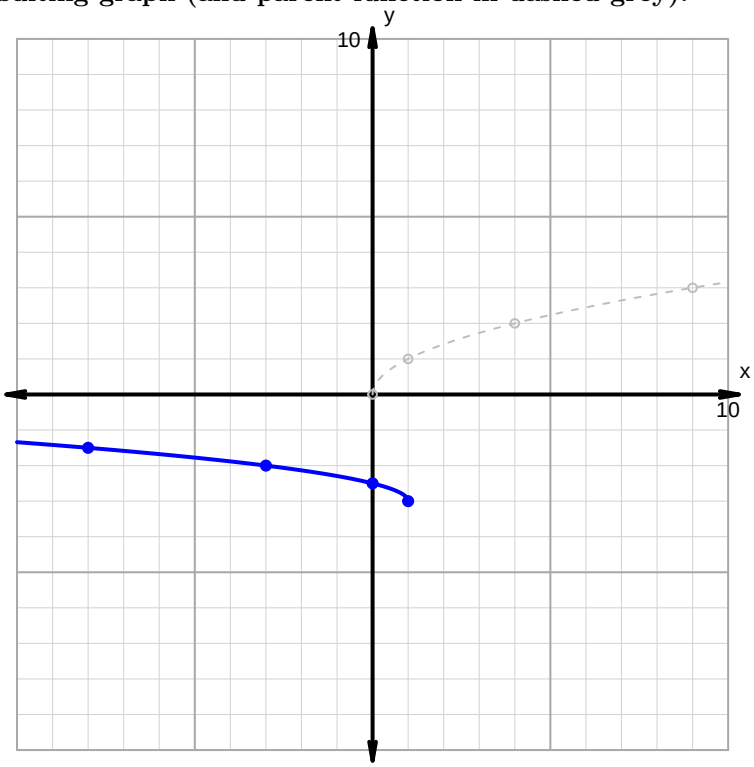
Horizontal transformations

1. Horizontal reflection over y axis.
2. Translate right by distance 1.

Vertical transformations

1. Vertical shrink by factor 2.
2. Translate down by distance 3.

Resulting graph (and parent function in dashed grey):

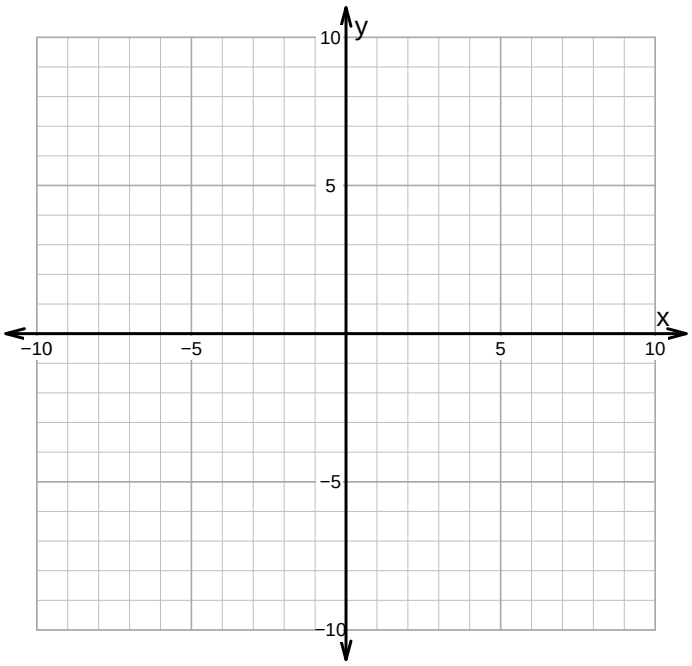


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{-1}{3} \cdot |x - 3| + 2$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	